

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An image processing system for picking up and displaying an image, the image processing system comprising:

a first dividing means for dividing an optical image of an object into a first spectrum;

a detecting means for detecting the first spectrum obtained by the first dividing means and outputting image data based on the detected spectrum;

a second dividing means for dividing white light into a second spectrum;

extracting means for extracting, from the second spectrum ~~of the white light divided into the spectrum generated~~ by the second dividing means, spectrum portions based on the image data detected by the detecting means;

synthesizing means for synthesizing the spectrum portions extracted by the extracting means; and

projecting means for projecting light formed by synthesizing the spectrum portions by the synthesizing means.

Claim 2 (Currently Amended): An image processing method of an image processing system for shooting and displaying an image, the method comprising ~~the steps of~~:

performing a first dividing operation, using a first optical image dividing device, for dividing an optical image of an object into a spectrum;

detecting the spectrum, using a spectrum detecting device, obtained by the first dividing operation and outputting image data based on the detected spectrum;

performing a second dividing operation, using a second optical image dividing device,  
for dividing white light into a spectrum;

extracting, from the spectrum of the white light divided into the spectrum by the  
second dividing operation using a spectrum extracting device, spectrum portions based on the  
image data output by the detecting operation;

synthesizing, using a synthesizing device, the spectrum portions extracted by the  
extracting operation; and

projecting, using a projection device, light formed by synthesizing the spectrum  
portions by the synthesizing operation.

Claim 3-4 (Canceled).

Claim 5 (Currently Amended): The image pickup device according to Claim [[4]] 6,  
wherein each photoelectric sensor includes an electron shock CCD.

Claim 6 (Currently Amended): An image pickup device for picking up an image, the  
image pickup device comprising:

a dividing unit configured to divide an optical image of an object into a spectrum;

a detecting unit configured to detect the spectrum obtained by the dividing device and  
outputting a pixel of image data based on the detected spectrum

a separating device configured to separate one line of light forming the optical image  
of the object and supplying the separated one line of light to the dividing device; and

a focusing device configured to focus the optical image of the object onto the detecting device,

wherein the detecting device includes a plurality of photoelectric sensors disposed in a plane for detecting the strength of the light, each photoelectric sensor detecting a spectral component of each pixel of the one line of light

~~The image pickup device according to Claim 4,~~ wherein the separating ~~means~~ device includes a slit and adjusting ~~means~~ device, the slit separating the one line of the optical image of the object, the adjusting ~~means~~ device adjusting a position where the optical image of the object is incident upon the slit.

Claim 7 (Currently Amended): The image pickup device according to Claim 6, further comprising a focus means device is disposed just behind the slit for focusing thereon the optical image of the object, wherein the focusing ~~means~~ device temporarily focuses the optical image of the object on the focus ~~means~~ device.

Claim 8 (Currently Amended): The image pickup device according to Claim 6, wherein the dividing ~~means~~ device includes a prism, and the image pickup device further comprises an optical member causing the light exiting from the slit to be incident upon the prism as parallel light and the spectrum exiting from the prism to exit as converging light to the detecting ~~means~~ device.

Claim 9 (Currently Amended): The image pickup device according to Claim 6, wherein the adjusting ~~means~~ device includes a galvano-mirror or a polygon mirror.

Claim 10 (Currently Amended): The image pickup device according to Claim 6, wherein the adjusting ~~means~~ device adjusts the incident position so that the entire optical image of the object is incident upon the slit every first period, and the detecting ~~means~~ device outputs the image data every second period.

Claim 11 (Original): The image pickup device according to Claim 10, wherein the first period is a vertical scanning period and the second period is a horizontal scanning period.

Claim 12 (Currently Amended): The image pickup device according to Claim ~~[[3]]~~ 6, further comprising accumulating ~~means~~ device for accumulating the image data output by the detecting ~~means~~ device.

Claim 13-14 (Canceled).

Claim 15 (Currently Amended): The image display device according to claim ~~[[14]]~~ 21, wherein the adjusting ~~means~~ device includes a galvano-mirror or a polygon mirror.

Claim 16 (Canceled).

Claim 17 (Currently Amended): The image display device according to claim ~~[[16]]~~ 21, wherein the at least one reflector of the extracting ~~means~~ device includes a micromirror or

reflective liquid crystal.

Claim 18 (Currently Amended): The image display device according to claim [[16]]  
21, wherein the at least one transmission unit of the extracting ~~means~~ device includes  
transmissive liquid crystal.

Claim 19 (Currently Amended): The image display device according to claim [[16]]  
21, wherein the obtaining ~~means~~ device obtains the image data every first period, and the  
adjusting ~~means~~ device adjusts the projection position of the light formed by synthesizing the  
spectrum portions so that a line is successively displaced from another line every first period  
and one frame of image based on the image data is projected every second period.

Claim 20 (Original): The image display device according to claim 19, wherein the  
first period is a horizontal scanning period and the second period is a vertical scanning  
period.

Claim 21 (Currently Amended): An image display device for displaying an image,  
the image display device comprising:

a dividing unit configured to divide white light into a spectrum;

an obtaining unit configured to obtain image data based on a spectrum of an optical  
image of an object;

an extracting unit configured to extract by pixel spectrum portions based on the image  
data from the spectrum of the white light divided into the spectrum by the dividing unit;

a synthesizing unit configured to synthesize the spectrum portions extracted by the extracting unit;

a projecting unit configured to project light formed by synthesizing the spectrum portions by the synthesizing unit; and

adjusting unit configured to adjust a position of projection by the projecting unit,

wherein the extracting unit includes at least one reflector or transmission unit, the number of the at least one reflector or transmission unit being in correspondence with the number of pixels forming one line in a direction parallel with a line of the optical image of the object and in correspondence with the number of spectrum portions of the optical image of the object for one pixel in a direction perpendicular to the line, the at least one reflector or transmission unit controlling reflection or transmission of the spectrum of the white light on the basis of the image data obtained by the obtaining unit, and

~~The image display device according to Claim 16,~~ wherein the dividing means unit includes a lamp for emitting the white light, a condensing optical system for condensing the white light from the lamp into the form of a line, and a spectral prism for dividing the white light into the spectrum, and wherein the synthesizing ~~means unit~~ includes a synthesizing prism for synthesizing the spectrum portions extracted by the extracting ~~means unit~~.

Claim 22 (Original): The image display device according to Claim 21, wherein the condensing optical system includes a cylindrical lens or a parabolic sweep mirror.

Claim 23 (Original): The image display device according to Claim 21, further comprising a first optical member and a second optical member, the first optical member causing the light incident upon the spectral prism or the synthesizing prism to be parallel

light, the second optical member causing the light exiting from the spectral prism or the synthesizing prism to be converging light.

Claim 24 (Currently Amended): The image display device according to Claim 21, wherein the extracting ~~means~~ unit is the reflector, the spectral prism and the synthesizing prism are formed as one prism, and the image display device further comprises separating ~~means~~ unit for separating light traveling towards the reflector from light traveling away from the reflector.

Claim 25 (Currently Amended): The image display device according to Claim 21, wherein at least one of the condensing optical system and the projecting ~~means~~ unit is a mirror.

Claim 26 (Currently Amended): The image display device according to Claim 25, wherein the condensing optical system is a parabolic sweep mirror and the projecting ~~means~~ unit is an elliptical sweep mirror.

Claim 27 (Original): The image display device according to Claim 26, wherein a focus of the elliptical sweep mirror is positioned so as to optically correspond with a focus of the parabolic sweep mirror.

Claim 28 (Original): The image display device according to Claim 26, wherein the light formed by synthesizing the spectrum portions is projected towards the other focus of the elliptical sweep mirror.

Claim 29 (Currently Amended): The image display device according to Claim 25, wherein the condensing optical system is a parabolic sweep mirror and the projecting ~~means~~ unit is an elliptical sweep half mirror.

Claim 30 (Currently Amended): The image display device according to Claim [[16]] 21, wherein the dividing ~~means~~ unit includes a lamp for emitting the white light, a slit for separating in the form of a line a portion of the white light from the lamp, and a spectral prism for dividing the portion of the white light into the spectrum, and wherein the synthesizing ~~means~~ unit includes a synthesizing prism for synthesizing the spectrum portions extracted by the extracting ~~means~~ unit.

Claim 31 (Currently Amended): The image display device according to Claim [[14]] 21, further comprising a cylindrical screen for projecting thereon the light formed by synthesizing the spectrum portions.

Claim 32 (Canceled).

Claim 33 (Currently Amended): An image processing apparatus for picking up and displaying an image, the image processing apparatus comprising:



a first dividing means for dividing an optical image of an object into a first spectrum;

a detecting means for detecting the first spectrum obtained by the first dividing means and outputting image data based on the detected spectrum;

a second dividing means for dividing white light into a second spectrum;

a extracting means for extracting, from the second spectrum ~~of the white light divided into the spectrum~~ generated by the second dividing means, spectrum portions based on the image data detected by the detecting means; and

a synthesizing means for synthesizing the spectrum portions extracted by the extracting means; ~~and~~

~~shooting means for projecting light formed by synthesizing the spectrum portions by the synthesizing means.~~

Claim 34 (New): The image processing method according to Claim 2, wherein the synthesizing the spectrum portions extracted by the extracting operation is performed using an image synthesizing processor.